

FIGURE 1

Consensus

re3 (15-45)
 hcj7.pep (15-45)
 nv1.pep (15-45)
 GE11.2 (15-45)
 s71957.p (15-45)
 ec10 (15-45)
 sp2.tc (15-45)
 M2.2 (15-45)
 rela (15-45)
 168 (15-45)
 M1.5 (15-45)
 hpcprc1a.p1 (14-44)
 gm2.tc (15-45)
 s71864.p1 (15-45)
 i15.tc (15-45)
 spl.tc (15-45)
 re37b (15-45)
 re39 (15-45)
 hpchcj2.p (15-45)
 hpccgenom.p1 (15-45)
 hpcprc4a.p2 (14-44)
 hpcprc11a.p1 (4-34)
 re72b (15-45)
 hpcprc3a.p1 (4-34)
 re70 (15-45)
 re42 (15-45)
 63 (15-45)
 hcvj (15-45)
 hcvj1 (15-45)
 re38 (15-45)
 bk (15-45)
 re5 (15-45)
 re35 (15-45)
 re36 (15-45)
 re54 (15-45)
 re56 (15-45)
 64 (15-45)
 re62 (15-45)
 re41 (15-45)
 hpcvj3.p (15-45)
 jk2 (15-45)
 hcv1 (15-45)
 us5.tc (15-45)
 i21.tc (15-45)
 M3.1 (15-45)
 H77 (15-45)
 re43 (15-45)
 Ge6.3 (15-45)
 CO11 (15-45)
 TH (15-45)
 O115 (15-45)
 re4a (15-45)
 q1 (15-45)
 q3 (15-45)
 ghl.tc (15-45)
 M4.1 (15-45)

.T.VTGG.AARTT.G..SLF..G.SQ.IQLI

A.YA..AAQGH.A.NSFV...RS.A..NLK.V
 S.Q....Q..H.VR.VA.I.SP.SR.D.S..
 S.R....QQG.AVH.IA...SL.A..K...V
 S.H.M.AQQG.VAK.FT...GP.PA.K....
 S.H...AVQGH.SIR.LT...TS.PA.K...V
 E.H....I..K..ASLTG..NL.AK.N....
 E.H....N.G.AAA.IAG..TL.AK.NV...
 Q.R....T..QS.ARIAG..SL.AR.N....
 Q.H.M..T.G.NAY.LT.FLSV.A..K....
 E.H.M..A.SS..YRFA...TS.PA.K...V
 E.H....S..S..ATFSK..MP.A..N....
 G.TRV..A.....SSFA..LTH.P..N...V
 G.H....A...DAFRFS...TR.P..N....
 A.NM...AP....YKLT..SY.A..K....
 HNH....TS..N.F.ITT..TQ.P..KL..V
 G.H....A...NAHSLT..LAP.A..K....
 T.R.S..T..H..A.LT...SP.PR.N.H.V
 T.H.S..T.G...ASLT.F.AP.A..R...V
 T.H....ATGH..S.IA...LP.A..K....
 D.YAS..AQG.S.L.FT...TP.A..K....
 D.YAS..A.G.A.Y.IT...AP.A..N....
 R.YAS..A.G...H.FT...ST.AR.N....
 Q.Y....K..Q.VS.FTG..SS.P..K....
 D.Y.S..A...SIS.FT...TP.A..K...V
 S.Y....E.S...R.FA...TL.S..K....
 N.Y....S.G.AVA.FAG.LQP.AK.NV...
 H.R....QV.FR.H.LV...TQ.P..K...V
 H.H....RV.SS.QSLV.WLSQ.P..K...V
 H.R....VQGHV.STLT...RP.A..K...V
 N.R....VQG.D.S.LV...SL.P..K...V
 D.H....AQ.K..NRLV.M.AS.P..K....
 E.H....AS....QFRT.F.DL.P..K...V
 T.YM...AN....Q.FV...TP.PA.K...V
 E.H....TS....Q.FV...SA.A..K...V
 G.H....Q.....QSFT...SP.PQ.K....
 R.H....K..H..K.FA...TP.P..N....
 E.R...AVQGHGAL.LA...TP.P..K....
 E.R...AI.G..ASSFAG..TS.A..K...V
 E.R...QVVG...QSLT...TP.P..T....
 Q.R...AQVG...SSLT...TP.P..N...V
 R.Q...AQ.GH..S.LA...TP.P..K...V
 E.H....S.GH.VS.FV..LAP.AK.NV...
 E.H....S.GH.VT.IA...TS.AK.N....
 S.H....T..H.VA.FS...TV.PK.N....
 E.H....A..Y.AA.LA...TS.AK.N....
 E.H....S.G...A.LVG.LTP.AK.N....
 G.H....S.G.A.A.IAG.LTP.AR.N...V
 K.H....S.....S.IA..LTP.AK.NV...
 K.Y....SQ.QA.F.FT..LQQ.AK.N....
 E.T....S..HGAL.IA...NQ.AR.N....
 E.Y....AS..S.FTLVG..KQ.SQ.N...V
 Q.Y.S..SSG...S.LV.I.SP.A..NL...
 E.Y.S..A..Q..ARFAGF.QS.AK.N....
 E.Y.S..S..Q..A.FVR..ET.PK.N....
 S.Y.S..A..AQ.IT...SR.S..K...V
 S.Y....TQG.AAS.LT...SA.A..N....

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 45 (SEQ ID NO: 11)
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 45 (SEQ ID NO: 60)
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 45 (SEQ ID NO: 62)
 45 (SEQ ID NO: 63)
 45 (SEQ ID NO: 64)

FIGURE 2-1

nac5.tc (15-45)
 hpcgenanti.p3 (15-45)
 hcj4 (15-45)
 hpchcv.p2 (15-45)
 hcj1 (15-45)
 hct18 (15-45)
 hct27 (15-45)
 hcvcl (15-45)
 gel2 (15-45)
 LG (15-45)
 jt.p3.x (15-45)
 us4.tc (15-45)
 jk1 (15-45)
 hpcvjk4.p (15-45)
 hpce2cor.p (15-45)
 hpcns34d.p (15-45)
 FTO.1 (15-45)
 Gj6.1 (15-45)
 re7 (15-45)
 hcvkf (16-46)
 arg2.tc (15-45)
 hcj6 (15-45)
 hpchcj5.p (15-45)
 rs1.pep (15-45)
 re71 (15-45)
 re6 (15-45)
 hcj8.pep (15-45)
 re40 (15-45)
 hpcencr.p (15-45)
 re55b (15-45)
 aus1.tc (15-45)
 PC2.1 (15-44)
 hct23 (15-45)
 re34 (15-45)

N.Y.S..T.GH.GH.LTA..SP.A..N....
 S.I.S..TV....HSLA...TO.A..K....
 E.YTS..A.SH..STLA...SP.A..R...V
 H.LT...H...L.S.FAG..TP.P..R....
 E.I.S..Q...AMS.LV...TP.AK.N....
 E.YTS..N.GH.MT.IVRF.AP.PK.NVH..
 T.YT...N.....QALT.F.SP.AK.D....
 E.YT...ST....Q.LV...SR.AK.D....
 A.YTS..S.....Q.FA...SL.SQ.K...V
 A.YT...SV....H.FS...SQ.AK.N....
 V.YT...SQ..H.QSVT.F.TO.PA.R....
 H.YT...TV..S.Q.LVGFLSP.P..N....
 T.Y.SV.H.SQ..RRVA.F.SP.SA.K...V
 T.T.S..H.SQI.R.VT.F.SP.SA.K...V
 K.SL...VTR..AAARLTA..SS.P..R....
 G.SL...AR..AAS.LAG..SS.P..R....
 V.Q.SPPQ.GY..SVLTGILSP.AK.N...V
 V.Q.S..Q.GY..SVLTGILSP.AK.N...V
 G.YTV..AS.F..SRLT...AL.P..R...V
 N.HTV..TEGFA.QRLT...AL.P..K....
 S.RTA..AQ.FN.Y.VA.I.SP.P..R...V
 Q.HTV..ST.HNARTLTGM.SL.AR.K....
 N.RTVA.S..A..R.FT.M.SS.SK.NL...
 Q.RTV..QVGHVVR.FT...SA.SA.N....
 E.HT..AVSGH..NVLT...SS.S..N....
 V.RT..EV....ANTFA...TT.P..N..I.
 T.YSS.QE.G..VA.FAG..TT.AK.NLY..
 S.S.V..RQ.SA.FRFT.F.SR.PT.E.K..
 N.YT.A.SM.QSIYRLTDI.ST.P..KL..V
 R.ILMA.RQ.EV.QSFPG..SLAP..K.H..
 D.YA...SV.SIMA.IARF.SP.AR.D....
 E.YA..AS.GHDVSSFAR..AP.AR.N...-
 E.HR...S...S.A.VA...TP.AR.N....
 N.RAV.MVQS...YALT...DS.AA.KL..V

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 44 SERIAL NO: 89
 45 SERIAL NO: 90
 45 SERIAL NO: 91
 SERIAL NO: 92
 SERIAL NO: 93
 SERIAL NO: 94
 SERIAL NO: 95
 SERIAL NO: 96
 SERIAL NO: 97
 SERIAL NO: 98

FIGURE 2-2

Kutchinson Strains:		395	407	
H77	384	ETHVTGGSAGRTTAGLVGLLTPGAKONIQLI	41	1977
H90		-----SVL-IASF--R-P-----		1990
HC-J4 Strains:		395	407	
HPCJ483	384	ETVTSOGGAASHTTSTLASLSPGASQRIQLV	414	1983
J48711		A-----V-----RPT-----S-----		SEQ ID NO: 101
J48712		A-----AV-----RPT-P-S-----		SEQ ID NO: 102
J48713		A-----AV-----RPT-----S-----		SEQ ID NO: 103
J48714		A-----AV-----GPT-----S-----		1987
J48715		-----RV-G-----GPT-----S-----		SEQ ID NO: 104
HPCJ491		A-----V-GR-----GPT-----S-----K-----		SEQ ID NO: 105
J49120		--H-T-RV-G-----RPT-----S-----K-----		SEQ ID NO: 106
J49121		--H-T-RVVG-----GPT-----S-----K-----		SEQ ID NO: 107
J49122		--H-T-RV-GR-----GPT-----S-----K-----		1991
J49126		T-----V-GR-----GPT-----S-----K-----		SEQ ID NO: 108
J49127		K-----RPT-----		SEQ ID NO: 109
				SEQ ID NO: 110
				SEQ ID NO: 111
				SEQ ID NO: 112
NY Strains:		395	407	
NY1.1	384	STRVTGCGQGRAVHGIALSLFSGASOKIQLV	414	to
NY1.2		-----Q-F-----R-----E-----		SEQ ID NO: 113
NY1.3		-----R-----N-----		SEQ ID NO: 114
NY2.1		-----H-A-SLT-----R-----N-----		SEQ ID NO: 115
NY2.2		-----H-A-SLT-----R-----N-----		6mo
NY3.1		N-----R-----A-SLT-----P-----N-----		SEQ ID NO: 116
NY3.2		N-----R-----A-SLT-----P-----N-----		SEQ ID NO: 117
NY3.3		G-----R-----A-SLT-----P-----EN-R-----		-8mo
NY3.4		-----S-----A-SLT-----T-----N-----		SEQ ID NO: 118
NY3.5		--H--AL-----AY--T-FL-H-P-----		SEQ ID NO: 119
NY4.1		--Q-M-----AYSL-----L-P-N-----*		SEQ ID NO: 120
NY4.2		--Q-M-----AYSL-----LGP-----		SEQ ID NO: 121
NY4.3		--Q-M-----AYSL-----L-P-----		14mo
				SEQ ID NO: 122
				SEQ ID NO: 123
RS Strains:		395	407	
RS1.1.	384	RTRTVGGQVGHSEVGETSLFSGASQNIQLI	414	to
RS1.2.		Q-----		SEQ ID NO: 124
RS1.3.		Q-----D-----		SEQ ID NO: 125
RS2.4.		Q-----L-----		SEQ ID NO: 126
RS3.1.		Q-----L-----		2mo
RS4.1.		Q-----M-G-L-----R-----		SEQ ID NO: 127
RS4.2.		Q-H-----M-G-L-----		6mo
RS5.1.		Q-H-----M-G-L-N-----		SEQ ID NO: 128
				8mo
				11mo
				SEQ ID NO: 129
				SEQ ID NO: 130
				SEQ ID NO: 131

FIGURE 3

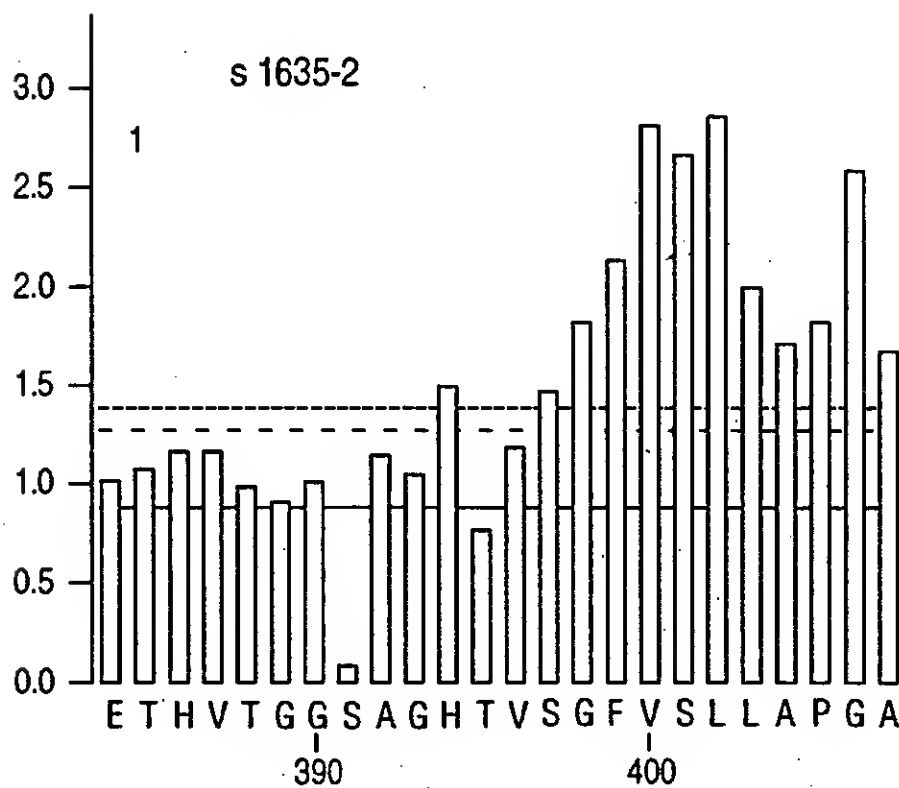
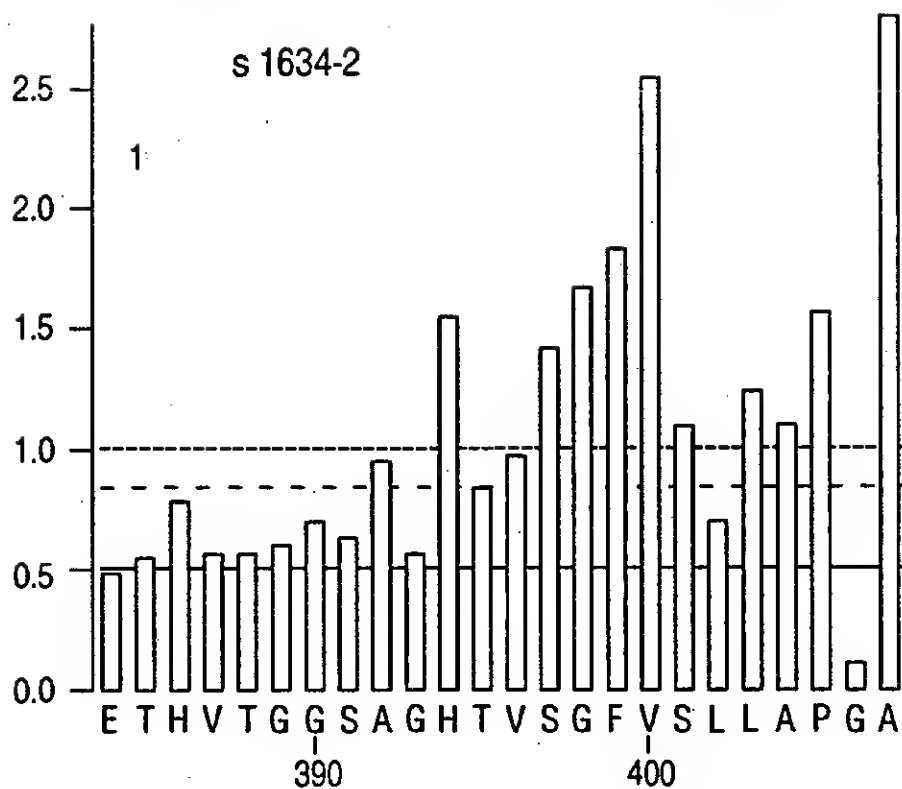


FIG. 5

824 ID NO. 132

B

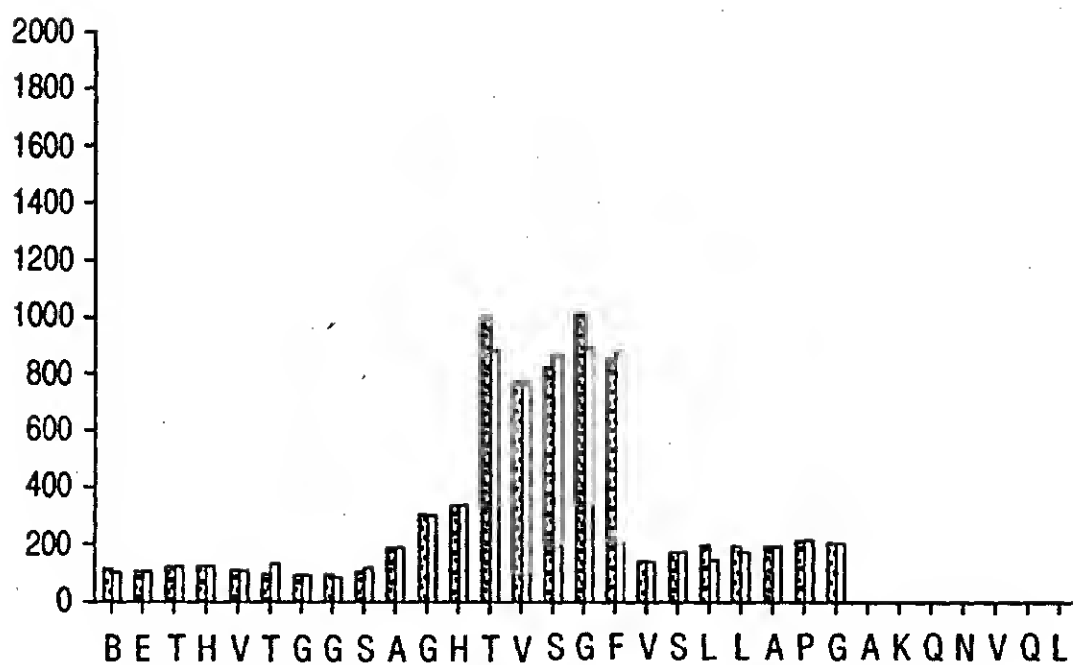


FIG. 6

76

SEQ ID NO: 133

